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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/893,676      | 06/29/2001  | Hyeon Ho Son         | 49128-5018          | 9570             |

9629 7590 03/22/2005

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EXAMINER


NGUYEN, JENNIFER T

ART UNIT PAPER NUMBER

2674

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/893,676 | <b>Applicant(s)</b> <br>SON ET AL. |  |
|                              | <b>Examiner</b><br>Jennifer T Nguyen | <b>Art Unit</b><br>2674  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-17 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office action is responsive to amendment filed on 01/21/2005.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-17, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky et al. (Patent No.: US 6,552,704) in view of Sugawara et al. (Patent No.: US 6,504,523).

Regarding claims 1 and 13, referring to Figs. 12A-12C, Zavracky teaches a method of driving a liquid crystal display device (1112) during one display frame, comprising the steps of: applying one of a high level common voltage (Vcom high) and a low level common voltage (Vcom low) to a plurality of liquid crystal cells of the liquid crystal display device (1112) to write data into the liquid crystal cells within a time interval shorter than one display frame interval; and turning on a backlight (1111) after said data writing to display an image (col. 10, lines 37-67, col. 11, lines 1-46, and col. 13, lines 23-49).

Zavracky differs from claims 1 and 13 in that he does not specifically teaches applying a reference common voltage to the plurality of liquid crystal cells after applying the one of the high level common voltage and low level common voltage. However, referring to Figs. 3 and 10, Sugawara teaches applying a reference common voltage (Vcom = 5V) to the plurality of liquid

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crystal cells after applying the one of the high-level common voltage ( $V_{gon} = 19V$ ) and low-level common voltage ( $V_{goff} = -10V$ ) (col. 2, lines 43-58 and col. 6, line 66 to col. 7, line 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the reference common voltage as taught by Sugawara in the system of Zavracky in order to prevent the flicker phenomenon and improve the picture quality.

Regarding claims 2 and 15, referring to Fig. 12B, Zavracky further teaches after applying one of the high-level common voltage and the low-level common voltage, the liquid crystal cells to respond according to the data written between the time when the data is written and when the backlight (1111) is turned on (col. 11, lines 1-35).

Regarding claims 3 and 14, the combination of Zavracky and Sugawara teaches the reference common voltage lower than the high-level common voltage and greater than the low-level common voltage (col. 2, lines 43-58 and col. 6, line 66 to col. 7, line 20 of Sugawara).

Regarding claims 4 and 17, referring to Fig. 12B, Zavracky teaches re-aligning the liquid crystal cells after the step of turning on the backlight (col. 13, lines 23-49).

Regarding claim 7, Zavracky teaches when data is being written, an effective voltage remaining in the liquid crystal cell is larger than a data voltage applied to the liquid crystal cell (col. 11, line 64 to col. 12, lines 8).

Regarding claims 12 and 24, Zavracky teaches the driving method is applied to twisted nematic mode liquid crystal display device (col. 13, lines 1-2).

Regarding claims 8, 10, 20, and 22, the combination of Zavracky and Sugawara teaches the high-level common voltage is +19V and the low level common voltage is -10V (Fig. 3 of Sugawara).

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Regarding claims 9 and 21, Zavracky further teaches the high-level common voltage is equal to a gate high voltage applied to a gate electrode of a thin film transistor of the liquid crystal cell (Figs. 12A and 12B, col. 10, lines 55-67, col. 11, lines 1-22).

Regarding claims 11 and 23, Zavracky further teaches the low-level common voltage is equal to a gate low voltage applied to a gate electrode of a thin film transistor in the liquid crystal cell (Figs. 12A and 12B, col. 10, lines 55-67, col. 11, lines 1-22).

Regarding claim 16, Zavracky further teaches one of the high level and low level common voltages (i.e., VcomLow) is applied to the liquid crystal cells after the step of turning on (Fig. 12B).

4. Claims 5, 6, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer T Nguyen whose telephone number is 571-272-7696. The examiner can normally be reached on Mon-Fri: 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JNguyen  
03/15/05

  
REGINA LIANG  
PRIMARY EXAMINER